



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/764,509

01/27/2004

Jung Tae Kang

6192.0146.D1

9956

32605

7590

04/24/2008

MACPHERSON KWOK CHEN & HEID LLP

2033 GATEWAY PLACE

SUITE 400

SAN JOSE, CA 95110

EXAMINER

NGUYEN, JIMMY H

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

04/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/764,509	Applicant(s) KANG ET AL.	
	Examiner JIMMY H. NGUYEN	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-23,25-31 and 33-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-23,25-31 and 33-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/621,825.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 02/05/2008. Claims 18-23, 25-31 and 33-46 are currently pending in the application. An action follows below:

Claim Objections

2. **Claim 41** is objected to because of the following informalities: “**the front panel**” in line 3 should be changed to -- **the front chassis** --, so as to make the claimed feature consistent with each other; see the feature in line 1. Appropriate correction is required.
3. **Claim 44** is objected to because of the following informalities: “**the front panel**” in line 3 should be changed to -- **the front chassis** --, so as to make the claimed feature consistent with each other; see the feature in line 1. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 18-23, 25-29, 41, and 43** are rejected under 35 U.S.C. 102(e) as being anticipated by Murai (US 5,986,726).

As to **claim 18**, the claimed invention may be read in the Murai as follows: Murai discloses a display device (a flat panel display device 10; Fig. 1; col. 3, line 43) comprising:
a display panel (a display panel 5; Fig. 1; col. 4, line 5) displaying an image;

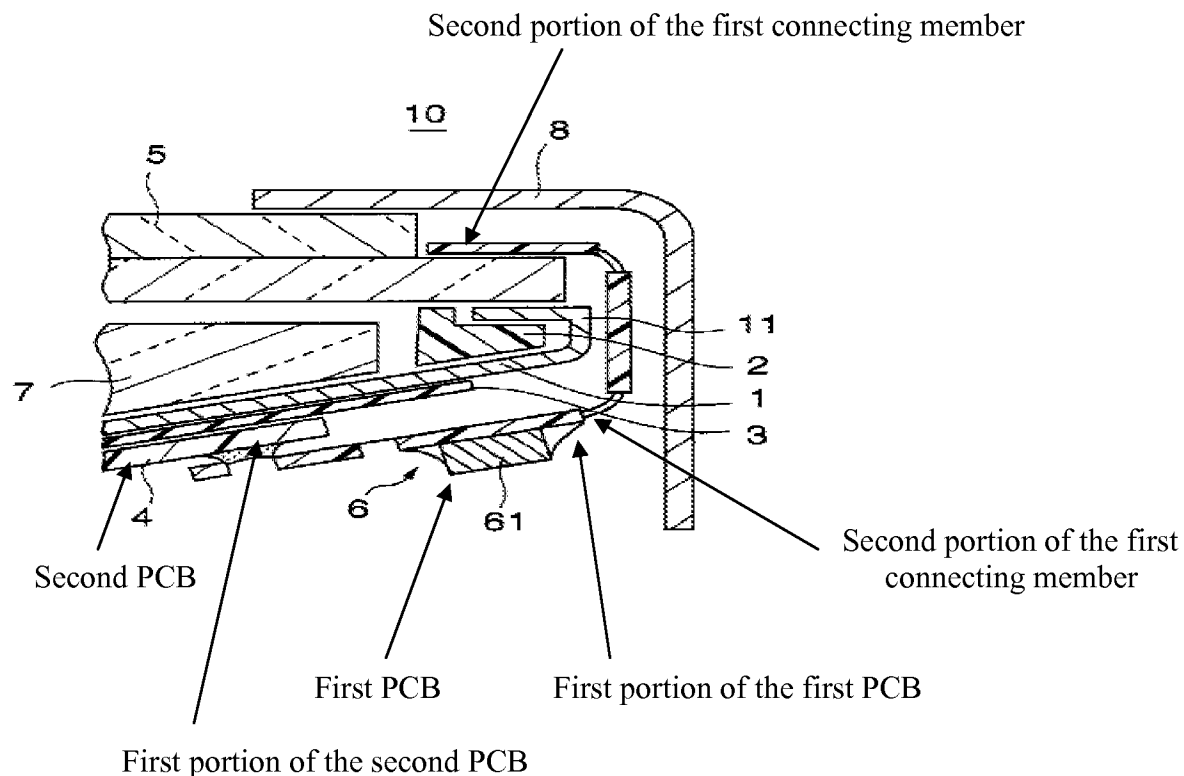
a mold frame (elements 1, 2; Fig. 1) having opposite front and rear planes (Fig. 1 shows a driver circuit 4 attached to the rear plane of mold frame (1, 2)), the display panel (5) being disposed in front of the front plane thereof (Fig. 1);

a first connecting member (a first portion of the TCP 6; Fig. 1) attached to a first portion of a front plane of the display panel (5) (Fig. 1);

a first printed circuit board (a circuit board having a driver IC 61 disposed thereon; Fig. 1) comprising a source PCB (61) closely attached to the rear plane of the mold frame (1, 2) and electrically coupled to the display panel (5) through the first connecting member, the first connecting member being attached to a first portion of the first PCB (see Fig. 1); and,

a second PCB (a driver circuit board 4; Fig. 1) comprising a driving circuit PCB (4) closely attached to the rear plane of the mold frame (1, 2) and having a first portion electrically connected to the first PCB without using a separate connecting member (Fig. 1). See the below annotated figure 1.

Accordingly, all limitations of this claim are read in the Murai reference.



Annotated Figure 1

As to **claim 19**, Murai discloses the first connecting member being attached to a first edge of the display panel (see Fig. 1).

As to **claim 20**, Murai discloses the first connecting member comprising a tape carrier package (TCP) (Fig. 1; col. 3, line 66).

As to **claim 21**, Murai discloses the TCP comprising a driver integrated circuit (col. 3, lines 66-67).

As to **claim 22**, Murai discloses the first PCB consisting exclusively of a wiring pattern for signal transmission (col. 3, line 66 through col. 4, line 4).

As to **claim 23**, Murai discloses the first connecting member being attached to a first edge of the source PCB (61) and the second PCB (4) being attached to a second edge of the source PCB (61) (Fig. 1).

As to **claim 25**, Murai discloses the display device including a plurality of source drivers and gate drivers, and wherein the source drivers (6/61) and gate drivers (6/61) all disposed on the second PCB (Figs 1-2).

As to **claim 26**, Murai discloses the second PCB (4) generating a timing signal for the display panel (5) (col. 3, line 66 through col. 4, line 3).

As to **claim 27**, Murai discloses a third connecting member (TCP 6 being attached to the shorter side of the display panel 5; see Fig. 2) attached to a second portion (the shorter side) of the display panel (5) (Fig. 2).

As to **claim 28**, Murai discloses the third connecting member (TCP 6) comprising a tape carrier package (TCP) (Fig. 2; col. 4, line 3).

As to **claim 29**, Murai discloses the TCP (6) comprising a driving integrated circuit (IC) (Fig. 2; col. 3, lines 66-67).

As to **claim 41**, Murai discloses a front chassis (a metal bezel 8; Fig. 1) coupled to a front of the mold frame (1,2), the front chassis (8) and mold frame (1,2) defining an enclosure within which the display panel (5) is enclosed (Fig. 1), the front chassis having a rectangular opening therein through which a front surface of the display panel is visible.

As to **claim 43**, Murai discloses a backlight assembly (elements 7, 71, 81; Fig. 2) interposed between the front plane of the mold frame (1,2) and the display panel (5) (Figs. 1-2; col. 4, lines 10-12).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 30-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai, as applied to claim 27 above, and further in view of Takahashi et al. (US 5,889,572), hereinafter Takahashi.

As to **claims 30-31**, as discussed in the rejection to claim 27 above, Murai discloses all limitation of these claims except that Murai does not explicitly disclose a third (gate) PCB electrically connected to the display panel through the third connecting member.

However, Takahashi discloses a related display device comprising a gate driver circuitry implemented by a separate gate PCB (610), which is attached to a left portion of the display panel (100) through tape carrier packages (TCP) (see Fig. 3, col. 2, lines 34-38). Takahashi further teaches the TCPs including driving ICs (250) (see Figs. 2-3, col. 2, lines 34-38) so as to interconnect the driving ICs and to reduce the width of the display (see col. 4, lines 11-21). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide a gate PCB in the display device of Murai, in view of the teaching in the Takahashi reference, because this would interconnect all the driving ICs while reducing the so-called frame area of the display device, as taught by Takahashi (see the Summary of the Invention; col. 4, lines 11-21).

8. **Claims 33-40, 44 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai as applied to claim 18 above, and further in view of Furuhashi et al. (US 5,909,205), hereinafter Furuhashi.

As to **claim 33**, Murai further teaches the driving circuit board (104/4) (or the claimed second PCB) receiving a video image from an external source (see col. 1, lines 6-10 and lines 50-67). Murai does not explicitly teach the video image, received from an external source, being an analog image, thereby failing to teach a signal converting unit for converting an externally provided analog video signal into a digital video signal and to provide the converted signal to the second PCB. Accordingly, Murai discloses all limitations of this claim except for a signal converting unit as presently recited in this claim.

However, Furuhashi discloses a related display device comprising a signal converting unit (an A/D converter 104; Fig. 1) receiving analog video signal (102) externally provided by the computer, into a digital video signal and electrically connected to the display driving circuitry (a circuit including elements 109-111, 118, 120; Fig. 1) through a second connecting member (a connection for providing a digital video signal 105 to elements 109 and 110; Fig. 1) to provide the converted signal to the display driving circuit (109-111, 118, 120) (see col. 7, lines 1-22 and col. 8, lines 7-12). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide an A/D converter electrically connected with the display driving circuit board (or the claimed second PCB) in the display device of Murai, in view of the teaching in the Furuhashi reference, because this would allow the display device of Murai capable of receiving an analog video signal from an external source such as a computer, as generally known by a person of ordinary skill in the art.

As to **claim 34**, Murai explicitly teaches the second PCB (4) closely attached to the rear plane of the mold frame (1, 2) through a recurvate bending of the first connecting member (Fig. 1) and Furuhashi teaches the signal converting unit (104) electrically connected to the display driving circuitry (the claimed second PCB) as discussed above. In other words, Murai in view of Furuhashi discloses all limitations of this claim except for the signal converting unit closely attached to the rear plane of the mold frame, as presently claimed.

However, while neither Furuhashi nor Murai disclose the particular location of the signal converting unit as presently claimed, since Furuhashi teaches the signal converting unit (104) disposed in the display device and electrically connected to the display driving circuitry (the claimed second PCB), one of ordinary skill in the art would have found it obvious to dispose the signal converting unit nearby or on the display driving board (the claimed second board), thereby rendering the signal converting unit closely attached to the rear plane of the mold frame, as presently claimed. Further, a change in location is generally recognized as being within the level of ordinary skill in the art, see **In re Japikse, 86 USPQ 70 (CCPA 1950)**. Therefore, it would have been obvious to a person of ordinary skill in this art to dispose the signal converting unit as presently claimed as desired to obtain the invention as specified in claim above.

As to **claims 35 and 36**, Murai in view of Furuhashi discloses the third connecting member for connecting between the signal converting unit and the second PCB (see the discussion to claim 33 above). Neither Furuhashi nor Murai expressly teach the third connecting member comprising an upper socket and lower socket, as presently recited in claim 35, or a biting connector, as presently recited in claim 36. However, Official Notice is taken that both the concept and the advantages of utilizing a connecting member comprising an upper socket and

Art Unit: 2629

lower socket, or a biting connector, as presently claimed, are well known and expected in the art. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to replace the third connecting member of Baek with the known connecting member, which comprises either an upper socket and lower socket or a biting connector, because it would allow the signal converting unit easily separated from the second PCB without any special tool, as known by a person of ordinary skill in the art.

As to **claims 37 and 38**, since these claims recite limitations similar to those of claim 33 above, these claims are therefore rejected for the same reasons set forth in claim 33 above.

As to **claim 39**, see the rejection to claim 35 above.

As to **claim 40**, see the rejection to claim 36 above.

As to **claim 44**, see the rejection to claim 41 above.

As to **claim 46**, see the rejection to claim 43 above.

9. **Claim 42** is rejected under 35 U.S.C. 103(a) as being unpatentable over Murai as applied to claim 41 above, and further in view of Yun et al. (US 5,835,139), hereinafter Yun.

As to **claim 42**, Murai further teaches the display device used for notebook personal computers or portable television (see col. 1, lines 6-10), but does not expressly disclose the display device comprising opposing front and rear cases as presently claimed.

However, Yun discloses a related display device (a LCD device as shown in Fig. 7) used in a portable personal computer (see Fig. 9), comprising a front case (520) and a rear case (500) coupled to each other to define an enclosure within which the display device (700) is enclosed (col. 4, lines 55-58), the front case (520) having a opening therein corresponding to the rectangular opening of the front chassis (400) (see Figs. 6-7). It would have been obvious to a

person of ordinary skill in the art at the time of the invention was made to utilize the front and rear cases to enclose the display device of Murai, in view of the teaching in the Yun reference, because this would securely protect the display device in the front and rear cases and allow the user to rotate the display device used in the portable device, such as a portable computer, by rotating means of the front and rear cases (see Fig. 9).

10. **Claim 45** is rejected under 35 U.S.C. 103(a) as being unpatentable over Murai in view of Furuhashi as applied to claim 44 above, and further in view of Yun.

As to **claim 45**, see the rejection to claim 42 above.

Response to Arguments

11. Applicant's arguments with respect to claims 18-23, 25-31 and 33-40 (see last two pages of the amendment filed 2/5/2008) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2629

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675.

The examiner can normally be reached on Monday - Friday, 6:30 a.m. - 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jimmy H Nguyen/

Primary Examiner, Art Unit 2629